(RESEARCH ARTICLE)

Analysis of factors affecting pulmonary tuberculosis examination of household contacts of pulmonary tuberculosis patients in the working area of Polara health Centre, Keb. Konawa Islands In 2024

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Abstract

Background: Tuberculosis, commonly abbreviated as TB, is an infectious disease caused by bacteria that can attack the lungs and other organs, namely Mycobacterium tuberculosis, Mycobacterium africanus, Mycobacterium Bovis, Mycobacterium leprae, etc. Acid-fast bacteria, commonly known as AFB, are a group of Mycobacterium bacteria other than Mycobacterium tuberculosis that can cause respiratory tract disorders, known as MOTT (Mycobacterium Other Than Tuberculosis), which can sometimes interfere with the diagnosis and treatment of TB).

Methods: The type of research used was quantitative analysis with a cross-sectional research design using univariate, bivariate, and multivariate tests. The population in this study consisted of all families of patients who tested positive for pulmonary TB using the BTA technique, with a total sampling technique resulting in a sample size of 197 people.

Results: The results of the study indicate that there is an influence of knowledge (0.000), attitude (0.000), and economic status (0.044) on tuberculosis screening in the working area of the Polara Community Health Centre in Konawa Keplerian Regency in 2024.

Conclusion: The knowledge variable is the most influential variable on pulmonary TB screening in the working area of the Polara Community Health Centre in Konawa Keplerian Regency in 2024, with an Exp(B) value of 515.9.

Keywords: Tuberculosis; Knowledge; Attitudes; Economic Status

1. Introduction

Infectious diseases remain a major issue to this day, leading to increased disability, suffering, and even death. As a result, comprehensive, maximum, and continuous efforts are being made to prevent, treat, and eradicate these diseases. Infectious diseases require attention from various parties, including tuberculosis in Indonesia [1]. Tuberculosis (TB) is an infectious disease caused by the bacterium Mycobacterium tuberculosis. It typically affects the lungs but can also affect other organs in the body. The disease spreads from person to person through airborne transmission when individuals cough, sneeze, or speak, causing the bacteria to be inhaled and resulting in infection [2].

Tuberculosis (TB) is caused by the Mycobacterium tuberculosis bacterium, which is contagious and one of the leading causes of death worldwide, including in Indonesia. According to the WHO Global TB Report, there are ten million people with tuberculosis, resulting in 1.2 million deaths each year. Indonesia is the country with the highest number of pulmonary TB cases in the world, with 845,000 pulmonary TB patients and a death toll of 98,000, or eleven deaths per

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hour. New cases account for 67% of those being treated, reaching 283,000 pulmonary TB patients and posing a risk of transmitting TB bacteria to others [3].

Indonesia itself ranks second in the world for the highest number of pulmonary TB cases after India, followed by China. In 2022, Indonesia ranked third in terms of the highest number of cases, so 2023 is clearly no better. Pulmonary TB cases in Indonesia are estimated at 969,000 cases (one person every 33 seconds). This figure represents a 17% increase from 2021, which recorded 824,000 cases. The incidence rate of pulmonary TB in Indonesia is 354 per 100,000 population, meaning that out of every 100,000 people in Indonesia, 354 are affected by pulmonary TB [4].

Data from the Southeast Sulawesi Provincial Health Office (Dinkes Sultra) shows that the number of pulmonary TB cases fluctuates each year. In 2021, there were 3,964 cases of pulmonary TB, and in 2022, there were 4,551 cases. In May 2024, the number of tuberculosis (TB) cases reached 2,024 cases spread across the entire region, with 2,024 confirmed positive cases. This number increased from 5,624 cases in 2023, with an estimated 34,233 cases[5]. According to data from the Konawe Kepulauan District Health Office in 2023, the highest number of cases was recorded at the Polara Health Center, with 15 positive pulmonary TB cases identified from June 2022 to December 2023. In 2024, an additional 9 patients were identified as positive for pulmonary TB.

Some members of the community do not yet understand how to identify the early signs of pulmonary TB, although their knowledge is relatively good. However, the community's attitude is still not in line with this knowledge because they are not yet concerned about the consequences of pulmonary TB. Some members of the community are reluctant to visit health care facilities to have their sputum checked because they are embarrassed and afraid of being known by others. The community believes that it is not necessary for others to know about their own health status. Therefore, knowledge or cognition is very important in shaping a person's actions in making decisions. With adequate knowledge, one should have behavior that leads to better outcomes. A person's knowledge is considered good if it is supported by a positive attitude in responding to something, which is reflected in behavior and influences a person to make good decisions as well. The domain of behavior is knowledge, attitude, and action [6].

2. Method

The type of research used was quantitative analysis with a cross-sectional research design using univariate, bivariate, and multivariate tests. The population in this study consisted of all families of patients who tested positive for pulmonary TB using the BTA technique, with a total sampling technique resulting in a sample size of 197 people.

3. Results

3.1. Univariate Analysis

Table 1 Frequency Distribution of Respondent Characteristics

Respondent Characteristics		n	%
Age	18-45	98	49,7
	46-70	99	50,3
	Total	197	100
Gender	Men	80	40,6
	Woman	117	59,4
	Total	197	100
Level of Education	Low	107	54,3
	Height	90	45,7
	Total	197	100

Source: Primary data, 2024

From Table 1, it can be seen that the characteristics of the respondents in this study are as follows: the majority of respondents are aged 46-70 years (50.3%), female (59.4%), and have a low level of education (54.3%).

Table 2 Frequency Distribution of Respondents

Respondent Distribution		N	%
Tuberculosis Screening	Don't Want To	152	77,2
	Want	45	22,8
	Total	197	100
Knowledge	Less	145	73,6
	Good	52	26,4
	Total	197	100
Attitude	Negative	157	79.7
	Positive	40	20,3
	Total	197	100
Economic Status	Low	119	60,4
	Height	78	39,6
	Total	197	100

Source: Primary data, 2024

From Table 2, it can be seen that the distribution of respondents in this study shows that out of 197 respondents (100%), the majority of respondents did not want to undergo pulmonary TB screening, with 152 respondents (77.2%) furthermore, among the total respondents, the majority had insufficient knowledge (145 respondents, 73.6%), followed by the majority having a negative attitude (157 respondents, 79.7%), and among the total respondents, the majority had low income (119 respondents, 60.4%).

3.2. Bivariate Analysis

Table 3 Influence of Knowledge, Attitude, and Economic Status on Pulmonary TB Screening Among Respondents in the Polara Community Health Center Working Area in 2024

Variable	Pulmonary TB examination				Total		*P-Value*
	Don't Want To		Want				
	n	%	n	%	N	%	
Respondents' Knowledge							0,000
Bad	136	66,9	9	33,1	145	100	
Good	16	40,1	36	59,9	52	100	
Total	152	56,0	45	44,0	197	100	
Respondents' Attitudes							0,000
Negative	148	65,9	9	35,1	157	100	
Positive	4	30,9	36	69,1	40	100	
Total	152	56,0	45	44,0	197	100	
Economic Status							0,044
Low	86	70,8	33	27,2	119	100	
Height	66	79,4	12	20,6	78	100	
Total	152	56,0	45	44,0	197	199	

Source: Primary data, 2024

3.3. Multivariate Analysis

Table 4 Results of Multivariate Analysis of Logistic Regression Tests Affecting Pulmonary TB Screening in the Polara Community Health Center Working Area in 2024

No	Variable	*P Value*	Wald	Exp(B) (OR)	95% C.I.for EXP(B)	
					Lower	Upper
1	Knowledge	0,000	14,567	515,9	6,810	390,862
2	Attitude	0,000	21,926	130,7	64,752	262,592
3	Economic Status/Income	0,044	8,350	114,0	0,001	0,225

Source: Primary data, 2024

4. Discussion

Knowledge is justified true belief. An individual justifies the truth of their beliefs based on their observations of the reality they face. Knowledge about tuberculosis needs to be improved because if clients lack knowledge, it can result in the treatment process for clients with pulmonary tuberculosis not being carried out according to procedure. Therefore, healthcare workers need to improve the provision of information about tuberculosis and should utilize the time when patients visit the hospital for follow-up to enhance their understanding and knowledge of tuberculosis [7]. Based on the logistic regression test, the p-value for the knowledge variable was 0.000 < 0.05, indicating that knowledge influences tuberculosis screening in the Polara Health Centre's service area. Knowledge is also the most dominant variable influencing pulmonary TB examinations in the Polara Health Centre's working area, with an Exp(B) value of 515.9. This is because the majority of respondents could not answer some questions on the instrument distributed by the researcher correctly. Among them were: "Pulmonary TB can be transmitted through droplets of sputum and sneezing from a pulmonary TB patient." This indicates that the public's knowledge of pulmonary TB is still very limited. The lack of knowledge among respondents is also due to their educational level, as the majority of respondents only completed junior high school. Generally, the higher a person's education level, the more information they receive, and the higher their knowledge, the more aware they are of their health [8].

Referring to Green's theory, which states that attitude is a predisposing factor for a person's behavior, a negative attitude or disagreement towards a treatment will encourage the patient to be non-compliant in seeking treatment, both in terms of seeking repeat treatment and taking medication. A patient's attitude reflects their internal motivation. A positive attitude indicates high motivation to recover from the disease, whereas low motivation to recover results in a patient adopting a more passive approach to treatment [9]. The attitude of TB patients is an important factor influencing the success of treatment and prevention of disease spread. Efforts to improve positive attitudes through education and psychosocial support should be an integral part of TB control strategies in the community [10]. Based on logistic regression analysis, the p-value for the attitude variable was 0.000 < 0.05, indicating that knowledge influences TB screening in the work area of the Polara Health Center. This is because the majority of respondents had a negative attitude, as they lacked a good understanding of tuberculosis, including its causes, transmission, symptoms, and the need for regular examinations as a preventive measure. As a result, some respondents were less supportive of early pulmonary TB screening.

Economic status refers to a condition that indicates a family's financial capacity and material possessions. Economic status is an important factor in families categorized as either low or high. If the economic status is low, the family will face difficulties in meeting basic living needs according to health standards.[11] According to economic status theory, a low economic status is closely linked to an increased incidence of tuberculosis through various channels, including limited access to healthcare, poor housing conditions, malnutrition, risky working conditions, lack of education, and social stigma. Efforts to reduce TB incidence must include a comprehensive approach that focuses not only on medical aspects but also on improving the social and economic conditions of the community. Improving access to healthcare, improving housing conditions, enhancing nutrition, and educating the public about TB are important steps to address the link between low economic status and TB incidence.[12] Based on logistic regression analysis, the p-value for the economic status variable was 0.044 < 0.05, indicating that economic status influences TB screening in the Polara Health Center's service area. This is because low socioeconomic status is a risk factor for reluctance to undergo TB screening. Most of them are from lower-middle-income households, with respondents primarily working as housewives. This

occurs because individuals with low incomes are less inclined to undergo pulmonary TB screening, as they prioritize using their income to meet basic needs rather than for health examinations.

5. Conclusion

There is an influence of knowledge on pulmonary TB screening in the working area of the Polara Community Health Center in 2024 with a p-value of 0.000<0.05. Respondents with low knowledge have a 51.591 times higher risk of not wanting to undergo pulmonary TB screening compared to respondents who have good knowledge of pulmonary TB screening with a value of (95%CI=6.810-390.862).

There is an influence of attitude toward pulmonary TB screening in the Polara Health Center's service area in 2024, with a p-value of 0.000 < 0.05. Additionally, attitude is the dominant factor influencing pulmonary TB screening in the Polara Health Center's service area in 2024. Respondents with a negative attitude toward pulmonary TB screening have a risk factor 130.757 times higher than those with a positive attitude toward pulmonary TB screening, with a value of (95% CI = 64.752–262.592).

There is an influence of economic status/income on pulmonary TB screening in the Polara Community Health Center working area in 2024 with a p-value of 0.044<0.05. Respondents with a low economic status have a 0.014 times lower likelihood of undergoing pulmonary TB screening compared to respondents with a higher economic status, with a 95% confidence interval (CI) of 0.001 to 0.252.

Suggestion

It is hoped that the Konawa Keplerian district government and related agencies will continue to improve education about pulmonary TB and conduct continuous monitoring of family members of pulmonary TB patients.

For people living in the Polara Community Health Center working area, it is hoped that they will be able to maintain their health and reduce risk factors for tuberculosis transmission, such as by undergoing regular health checks and learning about the symptoms of tuberculosis.

For future researchers, the researchers hope that the results of this study can be used as basic information for conducting further research. They also hope that future researchers will investigate other factors that significantly influence pulmonary TB examinations that are in direct contact with pulmonary TB patients using other methods.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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